

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method for searching a collection of media objects, comprising:
receiving a plurality of reference objects to define a first feature common to the plurality of reference objects as a search criterion;
combining information obtained based on each of the plurality of reference objects pertaining to the first common feature ~~a feature common to a plurality of reference objects~~ to produce composite reference information that specifies the first common feature as the search criterion ~~representing criteria for a search~~; and
comparing the composite reference information to information pertaining to ~~[[the]]~~ a same feature for each media object in a first plurality of media objects in the ~~respective one of a plurality of media objects in a~~ collection of media objects to identify one or more of the media objects;
wherein a non-Euclidian function is used ~~[[either]]~~ to combine the information pertaining to the first common feature, or to compare the composite reference information to information pertaining to the same feature.
2. (Original) The method of claim 1, further comprising:
receiving user input specifying the plurality of reference objects.
3. (Currently amended) The method of claim 1, further comprising:
selecting a media object in the collection of media objects based ~~[[upon]]~~ on the comparison of the information pertaining to the same feature for each media object and the composite reference information.

4. (Currently amended) The method of claim 1, wherein:

the plurality of reference objects includes one or more first reference objects having a type selected from: audio, image, text, CD, or video.

5. (Currently amended) The method of claim 4, wherein:

combining information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects~~ includes combining information for different types of the first reference objects.

6. (Currently amended) The method of claim 1, wherein:

combining information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects to produce composite reference information~~ includes determining ~~[[the]]~~ an intersection of the information for the reference objects.

7. (Currently amended) The method of claim 1, wherein:

combining information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects to produce composite reference information~~ includes determining ~~[[the]]~~ a union of the information for the reference objects.

8. (Currently amended) The method of claim 1, further comprising:

combining information obtained based on each of the plurality of reference objects pertaining to a second feature common to the plurality of reference objects to produce additional composite reference information that specifies the second common feature as an additional search criterion ~~representing criteria for the search~~; and

comparing the additional composite reference information to information pertaining to the second common feature for each media object in the first plurality of media objects

~~respective one of the plurality of media objects in the collection of media objects~~ to identify one or more of the media objects.

9. (Currently amended) The method of claim 8, wherein:

the information pertaining to ~~[[a]]~~ the first common feature and the information pertaining to ~~[[a]]~~ the second common feature ~~[[is]]~~ are weighted to specify a relative importance of the features.

10. (Currently amended) The method of claim 8, further comprising:

receiving user input indicating ~~[[the]]~~ a relative importance of the first common feature and the second common feature.

11. (Currently amended) The method of claim 8, wherein:

the first common feature and the second common feature are each represented by a relative frequency of occurrence of a feature value.

12. (Currently amended) The method of claim 8, wherein:

information pertaining to the first common feature and information pertaining to the second common feature includes color information describing ~~[[the]]~~ a relative frequency of occurrence of colors in an object.

13. (Currently amended) The method of claim 8, wherein:

the information pertaining to the first common feature is mapped to the information pertaining to the second common feature.

14. (Currently amended) The method of claim 1, further comprising:

combining information obtained based on each of the plurality of reference objects pertaining to the first common feature for an additional reference object with the composite reference information to revise the composite reference information.

15. (Currently amended) The method of claim 14, wherein:

the additional reference object is a media object identified by comparing the composite reference information to information pertaining to the first common feature for each media object in the first plurality of media objects ~~respective one of the plurality of media objects~~.

16. (Currently amended) The method of claim 14, further comprising:

comparing the revised composite reference information to information for the first common feature for each media object in a second plurality of media objects in the collection of media objects ~~of a second plurality of media objects in the collection of media objects~~.

17. (Currently amended) The method of claim 1, wherein:

comparing the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in a collection of media objects~~ includes assigning a similarity value to each media object in the first plurality of media objects ~~respective one of the media objects in the collection of media objects~~, each similarity value indicating the similarity of the information for the media object and the composite reference information.

18. (Currently amended) The method of claim 17, wherein:

each similarity value of each media object ~~of the media objects~~ in the collection of media objects is less than or equal to a similarity value calculated for each reference object.

19. (Currently amended) The method of claim 17, further comprising:

ranking the media objects according to their similarity values; and

selecting one or more of the media objects in the collection of media objects based
[[upon]] on its rank.

20. (Currently amended) The method of claim 8, wherein:

for each reference and media object, the information pertaining to the first common
feature and the information pertaining to the second common feature is expressed as a feature
vector of components.

21. (Currently amended) The method of claim 20, wherein:

combining information pertaining to [[a]] the first common feature and combining
information pertaining to [[a]] the second common feature ~~common to a plurality of reference~~
~~objects~~ includes combining the feature vectors of the plurality of reference objects to produce a
composite reference vector.

22. (Currently amended) The method of claim 21, wherein:

each feature vector includes one or more components representing metadata associated
with [[the]] a corresponding reference or media object; and

combining information pertaining to [[a]] the first common feature and combining
information pertaining to [[a]] the second common feature ~~common to a plurality of reference~~
~~objects~~ includes combining components representing the first common feature or the second
common feature according to a first combination function and combining the one or more
components representing metadata ~~associated with each reference object~~ according to a second
combination function.

23. (Currently amended) The method of claim 21, further comprising:

defining a weighting vector for the first common feature and the second common feature,
the weighting vector specifying a relative importance for the corresponding features;

wherein combining the feature vectors includes using the weighting vector to specify a relative importance of the corresponding features.

24. (Original) The method of claim 21, wherein:

combining the feature vectors includes using a Min or Max function.

25. (Currently amended) The method of claim 21, wherein:

comparing the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in a collection of media objects~~ includes comparing the composite reference vector to a feature vector of each media object in the first plurality of media objects ~~of the plurality of media objects in the collection of media objects~~.

26. (Currently amended) The method of claim 25, wherein:

comparing the composite reference vector to the feature vectors of each media object in the first plurality of media objects ~~of a plurality of media objects~~ includes using a Min or Max function.

27. (Currently amended) The method of claim 1, wherein:

combining information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects~~ includes using a combination function;

comparing the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in a collection of media objects~~ includes using a comparison function that is based ~~[[upon]]~~ on the combination function.

28. (Currently amended) A method for searching a collection of media objects, comprising:

receiving a plurality of reference objects to define two or more features common to a plurality of reference objects as search criteria;

combining information obtained based on each of the plurality of reference objects pertaining to the two or more common features common to a plurality of reference objects to produce composite reference information that specifies the two or more common features as the search criteria ~~representing criteria for a search~~, wherein the information is expressed as a feature vector of components and

combining includes combining the feature vectors of the plurality of reference objects using a Min or Max function to produce a composite reference vector; and

comparing the composite reference information to information pertaining to [[the]] a same feature for each media object in a first plurality of media objects ~~respective one of a plurality of the media objects~~ in the collection of media objects, wherein comparing includes comparing the composite reference vector to the feature vectors of each media object in the collection of media objects using a Min or Max function and assigning a similarity value to each media object in the collection of media objects, the similarity value indicating the similarity of the feature vector of the media object to the composite reference vector, where the similarity value of each of the media objects in the collection of media objects is less than or equal to a similarity value calculated for each reference object.

29. (Currently amended) A computer program product tangibly embodied in a machine-readable storage device ~~on a computer-readable medium~~, for searching a collection of media objects, the computer program comprising instructions operable to cause a programmable processor to:

receive a plurality of reference objects to define a first feature common to the plurality of reference objects as a search criterion;

combine information obtained based on each of the plurality of reference objects pertaining to the first common feature ~~a feature common to a plurality of reference objects~~ to

produce composite reference information that specifies the first common feature as the search criterion ~~representing criteria for a search~~;

compare the composite reference information to information pertaining to ~~[[the]]~~ a same feature for each media object in a first plurality of media objects in the ~~respective one of a plurality of media objects in a~~ collection of media objects to identify one or more of the media objects;

wherein a non-Euclidian function is used ~~[[either]]~~ to combine the information pertaining to the first common feature, or to compare the composite reference information to information pertaining to the same feature.

30. (Original) The computer program product of claim 29, further comprising instructions operable to cause a programmable processor to:

receive user input specifying the plurality of reference objects.

31. (Currently amended) The computer program product of claim 29, further comprising instructions operable to cause a programmable processor to:

select a media object in the collection of media objects based ~~[[upon]]~~ on the comparison of the information pertaining to the same feature for each media object and the composite reference information.

32. (Currently amended) The computer program product of claim 29, wherein:

the plurality of reference objects includes one or more first reference objects having a type selected from: audio, image, text, CD, or video.

33. (Currently amended) The computer program product of claim 32, wherein:

instructions to combine information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects~~ include instructions to combine information for different types of the first reference objects.

34. (Currently amended) The computer program product of claim 29, wherein:

instructions to combine information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects to produce composite reference information~~ include instructions to determine ~~[[the]]~~ an intersection of the information for the reference objects.

35. (Currently amended) The computer program product of claim 29, wherein:

instructions to combine object information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects to produce composite reference information~~ include instructions to determine ~~[[the]]~~ a union of the information for the reference objects.

36. (Currently amended) The computer program product of claim 29, further comprising:

instructions to combine information obtained based on each of the plurality of reference objects pertaining to a second feature common to the plurality of reference objects to produce additional composite reference information that specifies the second common feature as an additional search criterion ~~representing criteria for the search~~; and

instructions to compare the additional composite reference information to information pertaining to the second common feature for each media object in the first plurality of media objects ~~respective one of the plurality of media objects in the collection of media objects~~ to identify one or more of the media objects.

37. (Currently amended) The computer program product of claim 36, wherein:

the information pertaining to ~~[[a]]~~ the first common feature and the information pertaining to ~~[[a]]~~ the second common feature ~~[[is]]~~ are weighted to specify a relative importance of the features.

38. (Currently amended) The computer program product of claim 36, further comprising instructions operable to cause a programmable processor to:

receive user input indicating [[the]] a relative importance of the first common feature and the second common feature.

39. (Currently amended) The computer program product of claim 36, wherein:

The first common feature and the second common feature are each represented by a relative frequency of occurrence of a feature value.

40. (Currently amended) The computer program product of claim 36, wherein:

information pertaining to the first common feature and information pertaining to the second common feature includes color information describing [[the]] a relative frequency of occurrence of colors in an object.

41. (Currently amended) The computer program product of claim 36, wherein:

the information pertaining to the first common feature is mapped to the information pertaining to the second common feature.

42. (Currently amended) The computer program product of claim 29, further comprising instructions operable to cause a programmable processor to:

combine information obtained based on each of the plurality of reference objects pertaining to the first common feature for an additional reference object with the composite reference information to revise the composite reference information.

43. (Currently amended) The computer program product of claim 42, wherein:

the additional reference object is a media object identified by comparing the composite reference information to information pertaining to the first common feature for each media object in the first plurality of media objects ~~respective one of the plurality of media objects~~.

44. (Currently amended) The computer program product of claim 42, further comprising instructions operable to cause a programmable processor to:

compare the revised composite reference information to information for the first common feature for each media object in a second plurality of media objects in the ~~of a second plurality of media objects in the~~ collection of media objects.

45. (Currently amended) The computer program product of claim 29, wherein:

instructions to compare the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in a collection of media objects~~ include instructions to assign a similarity value to each media object in the first plurality of media objects ~~respective one of the media objects in the collection of media objects~~, each similarity value indicating the similarity of the information for the media object and the composite reference information.

46. (Currently amended) The computer program product of claim 45, wherein:

each similarity value of each media object ~~of the media objects~~ in the collection of media objects is less than or equal to a similarity value calculated for each reference object.

47. (Currently amended) The computer program product of claim 45, further comprising instructions operable to cause a programmable processor to:

rank the media objects according to their similarity values; and
select one or more of the media objects in the collection of media objects based ~~[[upon]]~~ on its rank.

48. (Currently amended) The computer program product claim 36, wherein:

for each reference and media object, the information pertaining to the first common feature and the information pertaining to the second common feature is expressed as a feature vector of components.

49. (Currently amended) The computer program product of claim 48, wherein:

instructions to combine information pertaining to ~~[[a]]~~ the first common feature and instructions to combine information pertaining to ~~[[a]]~~ the second common feature ~~common to a plurality of reference objects~~ include instructions to combine the feature vectors of the plurality of reference objects to produce a composite reference vector.

50. (Currently amended) The computer program product of claim 49, wherein:

each feature vector includes one or more components representing metadata associated with ~~[[the]]~~ a corresponding reference or media object; and

combining information pertaining to ~~[[a]]~~ the first common feature and combining information pertaining to ~~[[a]]~~ the second common feature ~~common to a plurality of reference objects~~ includes combining components representing the first common feature or the second common feature according to a first combination function and combining the one or more components representing metadata ~~associated with each reference object~~ according to a second combination function.

51. (Currently amended) The computer program product of claim 49, further comprising instructions operable to cause a programmable processor to:

define a weighting vector for the first common feature and the second common feature, the weighting vector specifying a relative importance for the corresponding features;

wherein instructions to combine the feature vectors include instructions to use the weighting vector to specify a relative importance of the corresponding features.

52. (Original) The computer program product of claim 49, wherein:

instructions to combine the feature vectors include instructions to use a Min or Max function.

53. (Currently amended) The computer program product of claim 49, wherein:

instructions to compare the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in a collection of media objects~~ include instructions to compare the composite reference vector to a feature vector of each media object in the first plurality of media objects ~~of the plurality of media objects in the collection of media objects~~.

54. (Currently amended) The computer program product of claim 53, wherein:

instructions to compare the composite reference vector of the reference object to the feature vectors of each media object in the first plurality of media objects ~~of a plurality of media objects~~ include instructions to use a Min or Max function.

55. (Currently amended) The computer program product of claim 29, wherein:

instructions to combine information pertaining to ~~[[a]]~~ the first common feature ~~common to a plurality of reference objects~~ include instructions to use a combination function;

instructions to compare the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in a collection of media objects~~ include instructions to use a comparison function that is based on the combination function.

56. (Currently amended) A computer program product tangibly embodied in a machine-readable storage device ~~on a computer-readable medium~~, for searching a collection of media objects, the computer program comprising instructions operable to cause a programmable processor to:

receive a plurality of reference objects to define two or more features common to a plurality of reference objects as search criteria;

combine information obtained based on each of the plurality of reference objects pertaining to the two or more common features ~~common to a plurality of reference objects~~ to

produce composite reference information that specifies the two or more common features as the search criteria ~~representing criteria for a search~~, wherein the information is expressed as a feature vector of components and

the instructions to combine include instructions to combine the feature vectors of the plurality of reference objects using a Min or Max function to produce a composite reference vector; and

compare the composite reference information to information pertaining to ~~[[the]]~~ a same feature for each media object in a first plurality of media objects ~~respective one of a plurality of the media objects~~ in the collection of media objects includes comparing the composite reference vector to the feature vectors of each media object in the collection of media objects using a Min or Max function and assigning a similarity value to each media object in the collection of media objects, the similarity value indicating the similarity of the feature vector of the media object to the composite reference vector, where the similarity value of each of the media objects in the collection of media objects is less than or equal to a similarity value calculated for each reference object.

57. (Currently amended) A system for searching a collection of media objects, comprising:

means for receiving a plurality of reference objects to define a first feature common to the plurality of reference objects as a search criterion;

means for combining information obtained based on each of the plurality of reference objects pertaining to the first common feature ~~a feature common to a plurality of reference objects~~ to produce composite reference information that specifies the first common feature as the search criterion ~~representing criteria for a search~~;

means for comparing the composite reference information to information pertaining to ~~[[the]]~~ a same feature for each media object in a first plurality of media objects in the ~~respective one of a plurality of media objects in a~~ collection of media objects to identify one or more of the media objects;

wherein a non-Euclidian function is used ~~[[either]]~~ to combine the information pertaining to the first common feature, or to compare the composite reference information to information pertaining to the same feature.

58. (Currently amended) The system of claim 57, wherein:

means for comparing the composite reference information to information pertaining to the same feature for each media object in the first plurality of media objects ~~respective one of a plurality of media objects in the collection of media objects~~ includes means for assigning a similarity value to each media object in the first plurality of media objects ~~respective one of the media objects~~ in the collection of media objects, each similarity value indicating the similarity of the information for the media object and the composite reference information, wherein the similarity value of each of the media objects in the collection of media objects is less than or equal to a similarity value calculated for each reference object.

59. (Currently amended) A system for searching a collection of media objects, comprising:

means for receiving a plurality of reference objects to define two or more features common to a plurality of reference objects as search criteria;

means for combining information obtained based on each of the plurality of reference objects pertaining to the two or more common features ~~common to a plurality of reference objects~~ to produce composite reference information that specifies the two or more common features as the search criteria ~~representing criteria for a search~~, wherein the information is expressed as a feature vector of components

and means for combining includes means for combining the feature vectors of the plurality of reference objects to produce a composite reference vector; and

means for comparing the composite reference information to information pertaining to ~~[[the]] same two or more~~ features for each media object in a first plurality of media objects in the collection of media objects ~~respective one of a plurality of media objects in a collection of media objects~~, wherein the means for comparing includes means for comparing the composite reference

Applicant : Gregg D. Wilensky
Serial No. : 10/526,287
Filed : March 1, 2005
Page : 17 of 26

Attorney's Docket No.: 07844-0558US1 / P513

vector to the feature vectors of each of the media objects in the collection of media objects.